

22nd January, 1959.

COCOM Document No. 3415.49/1

COORDINATING COMMITTEERECORD OF DISCUSSIONONTHE REDEFINITION OF ITEM 1549(a); PHOTOMULTIPLIER TUBESJanuary 16th, 1959.

Present: France, Germany, Italy, Japan, Netherlands, United Kingdom, United States.

References: COCOM 3300 and 3015.49/1.

1. The CHAIRMAN asked for views of Delegations on the United Kingdom proposal to change the colour temperature referred to in sub-item (a) of Item 1549. He reminded the Committee that on the 8th January the UNITED STATES Delegation had stated that they could agree to the change from 2,350° K to 2,850° K.

2. The FRENCH Delegate stated that, in the view of French technical experts, 2,850° K was a high colour temperature, which it would be difficult to accept. The French expert explained that defining a colour temperature meant defining the temperature at which a tungsten filament was led into a vacuum tube for measurement purposes. At 2,350° K, an operational ^{life time} of about 1,000 hours ^{could be anticipated and} would not involve any special difficulties, because the gases confined in the tube would not affect the transparency of the tube for measurement purposes. That figure of 2,350° K, the expert reminded the Committee, had been agreed in May 1958. It had been the United Kingdom Delegation, in an Electronics Working Paper - No. 38, dated the 19th May - who had proposed this colour temperature, which applied to acceptable conditions. To raise it to 2,850° K would be quite possible, but the measuring lamps would have a shorter life, and it was likely that an ionic phenomenon would occur inside the tube and lead to a blackening of the glass. The French Delegation would, however, be prepared to accept a figure other than 2,350° K provided that a corresponding change could be made in the sensitivity formula. They therefore proposed that the introductory text of part (a) and sub-item (a)(1) should be changed as indicated below:

1549 Photomultiplier tubes:

- (a) Photomultiplier tubes with all the following characteristics for colour temperatures of 2,350° K and 2,850° K according to the method of measurement:
 - (1) Sensitivity exceeding the figure of 60 microamperes per Lumen for a colour temperature of 2,350° K or exceeding the figure of microamperes per Lumen for a colour temperature of 2,850° K;
 - (2) No change.
 - (3) No change.

The French expert added that the figure to be inserted in the second half of sub-item (a)(1) might be between 80 and 100 microamperes.

3. The French expert pointed out that, at 2,850° K, the temperature

~~CONFIDENTIAL~~

- 2 -

COCOM Document No. 3415.49/1

of the filament was higher in the centre than at its extremities, as it was cooled by its supports.

4. In response to the GERMAN Delegate's remark that he had received conflicting answers from German experts as to the probable effect of a change from 2,350° to 2,850° K, the French expert explained that the adoption of the method of measurement by colour temperature had led to the use of a spectroscopic band ("bande passante spectrale") for defining the colour temperature. At a later stage an international committee had established a Colour Triangle, with a colour temperatures curve: after studying this curve, the colour temperature could be calculated by reference to the three colorimetric co-ordinates. It was possible to effect measurements by decomposing the light according to the three colorimetric co-ordinates. With the Colour Triangle, divergencies of interpretation were possible, and for this reason some experts doubted its effectiveness. The expert suggested that the foregoing might explain how different German experts had arrived at differing results.

5. All Delegations agreed to refer this proposal to their Governments and the COMMITTEE AGREED that views would be heard on the 29th January.

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